Orbiter
May 2015

Herndon Memorial Science Competition Held on Two Coasts

by Gail Kellner
May 27, 2015

West Coast

Middle and high school students arrived at the Aerospace campus in El Segundo on Thursday, May 21, armed with their science experiments and their last-minute preparation jitters. Their anticipation was palpable, but they maintained a laser focus on their topics, readying themselves to answer questions and think on their feet for the groups of judges.

Brittany Appiah, of Robert E. Peary Middle School, with her presentation about extracting methane from trash. She won second place in the middle school experiments category. (Photo: Elisa Haber)

Dr. David Gorney, Executive Vice President, kicked off the 38th Annual Robert H. Herndon Competition, named after Robert H. Herndon, an inspirational Aerospace scientist, engineer, mentor, and humanitarian who died in 1976.

Gorney held up a book that he won in a math contest in high school. He shared with the students that the 19th edition of "Standard Mathematical Tables" still has a place on his bookshelf, reminding him that back in high school he was acknowledged for his ability in math, and it meant a great deal to him.

Dr. Dave Gorney holds a copy of " Standard Mathematical Tables," which he won as a prize in a high school math competition. (Photo: Elisa Haber)

Regarding their participation in the competition, he told the students, "You are going to learn not only about science, technology, engineering, and math, but you are also going to learn about teamwork." He added, "You must be able to present your results and describe them in a compelling and convincing way."

The A5-A8 courtyard area in El Segundo was filled with experiments from 14 middle schools and 14 high schools. Many of the students were at the competition for the first time this year. The experiments were diverse, covering such topics as "The Future of Transportation: Drive like a Google Mini," "Aqua-Fication," "Relating the Solar Cell and the Magnetohydrodynamic Drive," and "Backpack Weight Monitor," to name just a few.

All presentations were done by groups of students, except for one. Robert E. Peary Middle School participant Brittany Appiah went solo for her presentation called "From Trash to Gas: Building a Biogas Digester as a Source of Methane for Household Use." Her experiment and research hit close to home. She said that the impetus for the project was that she wanted to help her family members from Ghana and other third world countries to have the ability to cook with gas instead of burning wood, which she explained is unhealthy for the environment.

After the competition, the students were treated to lunch and a spirited game of "Who Wants to be an Enginaire?" This gave

the students a chance to relax and blow off some energy after their presentations. Many students lined up at the back of A1 Titan IVA and IVB to have a chance to press the button to answer the variety of STEM-related questions on the monitors.

Keynote speaker Dr. Anthony Maddox, professor of education, USC Rossier School of Education, gave an inspiring talk focusing on six engineering habits. He said that everyone needs a little bit of engineering in them. His six engineering habits:

1) Systems thinking — be able to see the big picture.
2) Optimism – have faith that the design you create will work.
3) Creativity – look beyond STEM.
4) Collaboration – teamwork is necessary to solve problems.
5) Communication – more than talking; listening and speaking using different mediums.
6) Ethical considerations – Some things have potential consequences when they are built.

Dr. Anthony Maddox, professor of education at USC, gave the keynote address of the day. (Photo: Elisa Haber)

Maddox emphasized that these are 21st century skills that everyone must have to deal with society. He also advised the students to stay in school, keep learning throughout their lives, explore other disciplines, mix it up, and always find the time to play.

El Segundo Winners

High School Experiment:
Sherman Oaks Center for Enriched Studies, first place
Bell Magnet High School, second place
Clark Magnet High School, third place

Middle School Experiment:
Manhattan Beach Middle School, first place
Robert E. Peary Middle School, second place
Jackie Robinson Science Academy, third place

High School Essay:
Melissa Cortez, Bell Gardens High School, first place, for “Genetic Engineering: A Process Used for Many Discoveries.”
Omar Rashad, West High School, second place, for “The Alzheimer’s Effect.”
Mahika Lunker, West High School, third place, for “Bio-engineering.”

Middle School Essay:
Sara Trigo, Webster Middle School, first place, for “Carbon Nanotubes Used to Ensure Mission Success.”
Anoushka Gunta, Bert Lynn Middle School, second place, for “GMOs – safe or Harmful.”
Sreeniketan Senapathi, Structural Engineering Institute (SEI)*, Houston, third place, for “Sustainable and Greener Energy in Aviation Hydrogen – The Future of Aviation Fuel.”
*Third place winner, Sreeniketan Senapathi discovered the competition through the Internet. He inquired if he could enroll in the competition through SEI, and because Aerospace has an office in Houston, the Herndon committee honored his request.

Check out the video highlights of the El Segundo competition day below:

[Video Removed]

Chantilly

A Herndon Science Competition was also held in Chantilly, Virginia, on the same day as the El Segundo competition. Twenty-three schools competed in the science essay and science experiment competition.

Allen Compito, general manager, Engineering and Technology Group; and Cathy Steele, senior vice president, National Systems Group; kicked off the program with introductory remarks.

Essay students were treated to an Aerospace history presentation given by Joseph Strada, retiree casual, National Systems Group, and two technical demonstrations by ETG (drones and long-range infrared camera).

The experiment students presented their projects to a panel of 13 judges from management, technical staff, and the U.S. Air Force.

Dr. Percy Pierre, former Aerospace board of trustees member, provided the keynote address, and thanked the parents and teachers for their support, stating that it is vital for the students' success. He discussed a project that inspired him to go into engineering, convincing him that he could do something useful. He said that engineering is more than research and learning – it is also about doing. "Science can't solve all problems, but ingenuity and creativity can," he said.

Pierre encouraged the students to continue to be curious, learn science, solve problems, and build things that help make a difference. He concluded by telling them that at times they may fail, but failure is a part of the process. "If it doesn't work, try something else and continue to keep going," he said.

Chantilly Winners

High School Experiment:
Elina Kapoor, first place, Winston Churchill High School, for "Automatic Detection of Vascular Lesions of the Retina Using a Localized Adaptive Threshold Approach."
Christopher Jones, second place, West Potomac High School, for "Developing an Autonomous Payload Retrieval System."
Denny Okudinani, third place, TC Williams High School, for "The Cyclocopter: A Study of The Efficiency of an Alternate to Modern Rotary Aircrafts."

Middle School Experiment:
Naveen Durvasula and Steven Qu, first place, Takoma Park Middle School, for "Developing and Evaluating a Novel Pathfinding Algorithm for Square Grid Graphs."
Ana Humphrey, George Washington Middle School, second place, for "Coliscan Easygel Tests."
Turner Bumbary, Rachel Carson Middle School, third place, for "A System of Systems (SoS) Concept Paper for Detecting and Preventing Asteroid Collisions with Earth."

Middle School Essay: (no high school essays were taken)
Zoree Jones, Ronald Wilson Reagan Middle School, first place, for "Ultraviolet Disinfection: In Search of a Greener Solution for Healthy Schools.
Turner Bumbary, Rachel Carson Middle School, second place, for "A Concept Paper for Detecting and Preventing Asteroid Collisions with Earth."

Student Judged Awards (new this year):

High School:

Elina Kapoor, first place, Winston Churchill High School, for "Automatic Detection of Vascular Lesions of the Retina Using a Localized Adaptive Threshold Approach."
Christopher Jones, second place, West Potomac High School, for "Developing an Autonomous Payload Retrieval System."

Middle School:
Turner Bumbary, Rachel Carson Middle School, first place, "A Concept Paper for Detecting and Preventing Asteroid Collisions with Earth
Naveen Durvasula and Steven Qu, second place, Takoma Park Middle School, for "Developing and Evaluating a Novel Pathfinding Algorithm for Square Grid Graphs."

British Knight Visits Aerospace

May 28, 2015

Sir Edward Lister, Deputy Mayor, Policy and Planning for the city of London visited the El Segundo Aerospace campus on Wednesday, May 27.

He met with President and CEO Dr. Wanda Austin to discuss Aerospace's efforts to expand its business in London and the United Kingdom.

Sir Edward was accompanied by David Pasquini, Vice Consul for the UK Trade and Investment (UKTI) organization, and Penny Harwood, Vice President of the UK business consultancy London & Partners. In addition to his duties as Deputy Mayor, Sir Edward serves as Chief of Staff to the Mayor of London and CEO of London & Partners, which promotes London to attract businesses, events, and other visitors.

Dr. Wanda Austin with Sir Edward Lister, Deputy Mayor of London. (Photo: Eric Hamburg)

Following the meeting with Austin, which included Malissia Clinton and other members of the Office of the General Counsel, as well as members of Civil and Commercial Operations, the UK visitors took a tour of the Spacelift Telemetry Acquisition and Reporting System (STARS) lab.

Congresswoman Bass Visits Aerospace Campus

May 22, 2015

Member of Congress Karen Bass visited the El Segundo Aerospace campus on Friday, May 22, touring the STARS lab, A6 laboratories, and meeting with several corporate officers.

Bass, a member of the House Committee on Foreign Affairs and the House Judiciary Committee, was elected to her third term last November as representative of California's 37th District, which is adjacent to El Segundo, centered in Culver City and West Los Angeles, and stretches along the south side of the Santa Monica Freeway to the Harbor Freeway.

During a working lunch in the Sally Ride Boardroom, Dr. Wayne Goodman, senior vice president, Operations and Support Group, presented a corporate overview that included Title I schools in Bass' district that Aerospace deals with on STEM matters.

Dr. Eric Johnson, left, shows Congressmember Bass results of various non-destructive evaluation techniques. Dr. Wanda Austin, Dr. Wayne Goodman, and others watch. (Photo: Elisa Haber)

AAPAA Celebrates With Heritage Festival

by Gail Kellner
May 13, 2015

From left: Jason Arimoto on the ukulele and Brad Ranola on the drums entertained the audience with their upbeat Hawaiian-inspired music. (Photo: Elisa Haber)

The Aerospace Asian Pacific American Association (AAPAA) held a lively cultural festival on Wednesday, May 13, in A1 Titan IVA and IVB. The event featured robust entertainment, an Asian-inspired lunch, and an upbeat keynote address by Dr. Wayne Goodman, Senior Vice President, Operations and Support Group.

The festival recognized Asian Pacific American Heritage Month and was themed "Many Cultures, One Voice: Promote Equality and Inclusion."

Goodman applauded the theme, saying that it acknowledged that our differences can be our greatest strengths, encouraging action over inaction, echoing Aerospace's own commitment to diversity and equality. He cited the importance of gradual change throughout his address.

"To make improvements in the world around us, we must continue to make our voices heard and strive for progress," he said. "One of the best ways for us to do this is to lead and serve within our communities. By setting an example for others, especially young people, we can uphold and reinforce a strong message of diversity and inclusion within our society," he said.

" Diversity, equality, and inclusion are ingrained in Aerospace's culture," said Dr. Wayne Goodman at the AAPAA Heritage Festival. (Photo: Elisa Haber)

AAPAA officers made introductions to the featured musicians and dancers. The award-winning musicians and dancers included Erhu soloist, Yunhe Liang; ukulele musicians, Jason Arimoto and Brad Ranola; and the Rangashree Dance Group.

Atlas V Launches Aerospace Experiments

by Kimberly Locke
May 20, 2015

An Atlas V rocket lifted off from Space Launch Complex 41 (SLC-41) at Cape Canaveral Air Force Station Wednesday, May 20, carrying several experiments, some prepared by Aerospace's technical staff.

The Atlas flew in the 501 configuration, with a five-meter payload fairing, no solid rocket boosters, and one engine in the Centaur upper stage.

Ray Johnson, vice president of Space Launch Operations, issued the following statement about the launch from Cape Canaveral:

"The Atlas V AFSPC-5 mission was successfully launched from the Cape today at 11:05 a.m. EDT. The vehicle lifted off of SLC-41 right at the opening of the launch window, after a very smooth countdown. The complex mission was very successful with deployment of the primary mission, the X-37B Orbital Test Vehicle, followed by the deployment of 10 CubeSats. Two of the

CubeSats were provided by Aerospace.

Congratulations to the entire Atlas launch team and the Aerospace CubeSat team. This is my last launch as SLO vice president, and I want to particularly thank the team for making my last mission a perfect mission."

The Air Force's reusable X-37B Orbital Test Vehicle, a sort of miniature space shuttle, was the main payload on board and is carrying an Aerospace-related experiment, known as the Materials Exposure and Technology Innovation in Space, or METIS. This experiment involves the exposure of nearly 100 different material samples, each about the size of a quarter, to the space environment for more than 200 days, according to its NASA sponsors.

The experiment's purpose is to gather information about various materials for specific applications, such as thermal protection, antennas, or any other space hardware for use by spacecraft designers. These new materials may one day replace currently used materials.

The X-37B was built by Boeing and features a pickup-truck-sized cargo bay that is seven feet long and four feet wide. Once in orbit, the spaceplane's clam-shell doors swing open to expose the payloads and then close prior to re-entry.

Aerospace's Christopher Panetta of the Materials Processing Department, Space Materials Labs, Technology and Laboratory Operations, Engineering and Technology Group, oversaw the corporation's role in the METIS experiment.

Panetta works in the optical thin film lab, a section of the Materials Processing Department. "One of the areas we are researching focuses on understanding silver mirrors and how they degrade on Earth and on orbit," Panetta explained. "Silver is the best reflector for visible light, which is why our customers like to fly it; however, it will tarnish when exposed to air and will not survive the years of assembly, integration, and testing of a payload."

The Atlas V lifts off in the opening seconds of its launch window on Wednesday, May 20. (Photo: United Launch Alliance, LLC)

He added that contractors will overcoat the bare silver surface with thin films designed to both protect the mirror and enhance its reflection, a boon for collecting light from hundreds of miles away. These sample experiments will be returned to Panetta and other scientists for post-flight analyses. Aerospace contributed 14 samples to this NASA experiment and four "traveler" samples designed to be exposed to the assembly environment and then be returned to Aerospace prior to launch.

Testing the integrity and longevity of materials used for space missions is an area that has been explored for several years. The Materials International Space Station Experiment (MISSE) featured a series of flight investigations mounted to the exterior of the International Space Station. This effort, which concluded in 2011, led to several improvements to spacecraft.

Aerospace's Donald Boucher, principal scientist, Advanced Programs, Space Based Sensing Division, Space Program Operations, led the team that developed the coating used on satellites that were part of the MISSE testing. "Our main reflectors used to be covered with a material that turned out to be sensitive to water over time," said Boucher. "The material's properties changed when it was exposed to a humid environment. So, we stripped the coating and replaced it with a new one that is very stable when exposed to humidity," he explained.

The true test came last year when Defense Meteorological Satellite Program (DMSP) 19's antenna provided much more accurate readings of atmospheric moisture as a result of the new coating. The remaining DMSP has the new coating, as will the DMSP follow-on system, said Boucher.

Meantime, the samples now aboard the X-37B will be sitting on a plate inside the cargo bay of the spacecraft. Once on orbit, Panetta said, the bay doors will open and expose the samples to the hard ultraviolet and atomic-oxygen environment found in low Earth orbit. There's also the possibility of encountering such galactic passersby as micrometeoroids and space debris. After some 200 days on orbit, the samples will be returned to Aerospace labs for postflight analyses.

"We are testing the stability of our chemical coating with respect to solar exposure, specifically, if our formulation performance degrades over time," Boucher explained.

"This is a passive experiment," said Panetta, "in that we are going to compare the preflight performance to postflight and try to decipher what has changed."

Career Panel and Fair Draws Crowd

by Laura Johnson
May 19, 2015

As a child, you may have been asked the question: “What do you want to be when you grow up?” If you’re working at Aerospace, chances are you’ve answered that question to some degree.

But just because you have a job doesn’t mean there’s not still room for growth. In fact, Aerospace has dozens of programs and resources designed to help you advance your career at the company.

Two such events were held on May 19, giving employees a chance to learn more about how they can progress in their careers at Aerospace and what resources the company has to offer. Although both events were sponsored by the Early Career Development Network, they were open to employees at any stage in their career.

The first event was a panel discussion, which packed out half of the Titan IV meeting center in El Segundo, and was available via VTC to other offices.

Bruce Mau, right, principal director of Launch Enterprise Engineering, discusses career opportunities within Space Launch Operations with Dr. Aaron Albrecht at the job fair sponsored by Early Career Development Network alumni on Tuesday, May 19. (Photo: Elisa Haber)

Dr. Jared Fortune, last year’s ECDN co-chair, and Dr. Malina Hills, vice president, Space Program Operations, kicked the program off with some opening remarks. Before the panel got going, Russ Averill, the founding chair of the ECDN, gave some thoughts on career development in a short speech filled with good advice and bad jokes.

Panelists, clockwise from upper left, Malina Hills, Sabrina Steele, Todd Nygren, and Bill Ailor. (Photo: Eric Hamburg)

The panel, featuring senior personnel from different areas of the company, answered questions posed by moderator Rita Lollock, general manager, Navigation Division, as well as questions from the audience.

The four panelists were Todd Nygren, general manager, Systems Engineering Division; Sabrina Steele, executive director, Corporate Communications and Public Affairs Division; Dr. Bill Ailor, distinguished engineer, Vehicle Systems Division; and Hills.

Together, they represented a broad spectrum of career paths, and were able to field questions ranging from “What’s some career advice you followed and found didn’t work at Aerospace?” to “How can extracurricular activities help your career?”

They shared insights about their own careers, including mistakes they made and things they learned.

Some of the advice they gave was to be willing to take risks and try something new, to talk to a lot of different people and hear their viewpoints, and to learn more about the company.

They acknowledged that people are different, and a career that satisfies one person may not be the best choice for another person.

Following the panel discussion, Dr. Rebekah Dillingham, senior consultant in Organization Effectiveness, gave attendees a list of some career resources that are available at Aerospace, such as Institute classes, the rotation program, the First-Time Manager Identification Program, and more.

Later in the day, a career fair was held in the Paulikas Mall of the El Segundo campus. A variety of booths showcased different organizations in which employees can work, clubs and affinity groups that employees can join, and career development

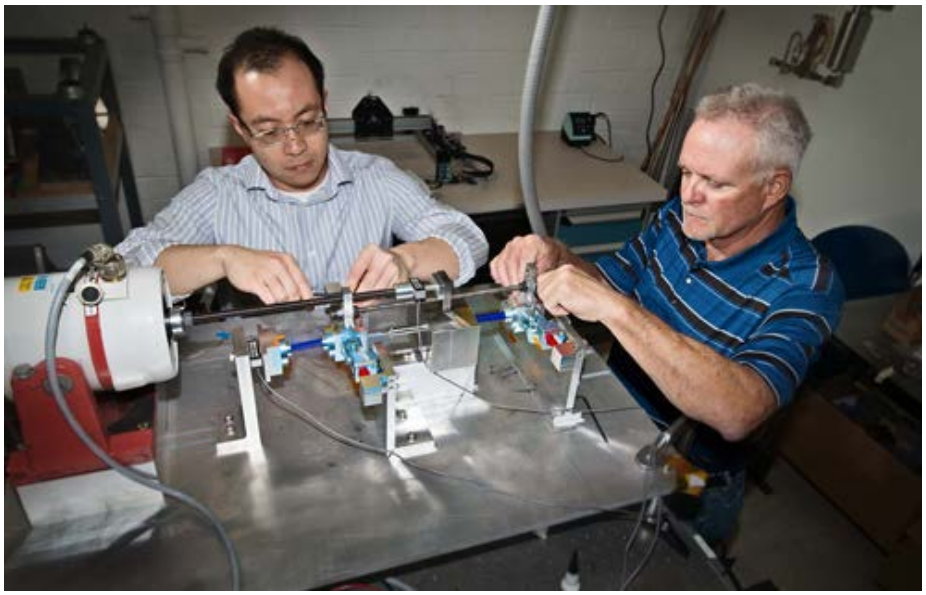
opportunities and resources at Aerospace.

By browsing through the fair, employees could learn more about the rotation program, mentoring, what it's like to work in the program office, or simply what a particular organization is all about.

The two events are over, but attendees can now go forward armed with new knowledge and resources to discover the career path that is best for them.

Whole Lotta Shakin' Not Goin' On

May 05, 2015



Tony Tang (left) and Lee Steffeney designed an experiment to assess the validity of the vibration-reduction concept. (Photo: Eric Hamburg)

Aerospace scientists have developed an innovative concept that has the potential to reduce vibrations for torque converters in automatic transmissions, a topic of great interest to a Japanese company called Aisin AW ("Aisin"), the world's largest manufacturer of automatic transmissions by market share.

Aisin, which is partially owned by Toyota, produces 20,000 transmissions per day. In 2012, Aisin was requesting proposals via a company called Nine Sigma for a technology to reduce engine vibrations by 95 percent for torque converters in automatic transmissions. Torque converters perform the same function as the clutch in a manual transmission.

"Engines these days are getting more powerful (more torque generated) and cars themselves are getting lighter (fuel economy), so more vibrations are felt by the drivers and passengers," said Aerospace's Dr. Ching-Yao (Tony) Tang. "There are already 'dampers' in the torque converter, but they're not enough."

Just a few months prior to Aisin's request for proposals, Tang and Dr. Gary Hawkins had successfully completed a two-year Material Logic program for the Defense Advanced Research Projects Agency and developed a material mechanism (patent pending) that is both stiff and also provides vibration damping; that is, lessening of vibration. This is unusual because most vibration damping materials are not stiff.

Their mechanism works by using a positive spring connected in series with a "negative" spring, along with a damping element. Unlike a conventional spring (material) where the reaction force increases the harder one pushes on it, the reaction force from a negative spring decreases the harder one pushes.

Hawkins and Tang brainstormed a response to the vibration-reduction technology challenge, and arrived at a concept that was promising but not yet validated. Their concept incorporated some aspects of the technology from their high-stiffness, high-damping material, and adapted it for automotive use.

Hawkins and Tang knew Aerospace's vibration-reduction technology proposal faced an uphill battle, considering the complexity of the concept and the counterintuitive nature of a negative spring. Yet they made every effort to explain the strengths of the concept and its extraordinary potential for success.

A couple months after submitting the proposal, Aerospace was informed that its proposal was the sole selection by Aisin. Aerospace hosted visits by Aisin senior management and engineers, and Aisin and Aerospace agreed to a multi-phase contract with specific deliverables, milestones, and a GO/NO-GO decision by Aisin upon completion of each phase.

The first phase, which began in December 2013, was to assess the viability of Aerospace's concept. Tang, Hawkins, and Brian Gore focused on conducting multibody dynamics modeling to gauge the potential for vibration reduction. They demonstrated that the concept could reduce vibrations by as much as 99 percent.

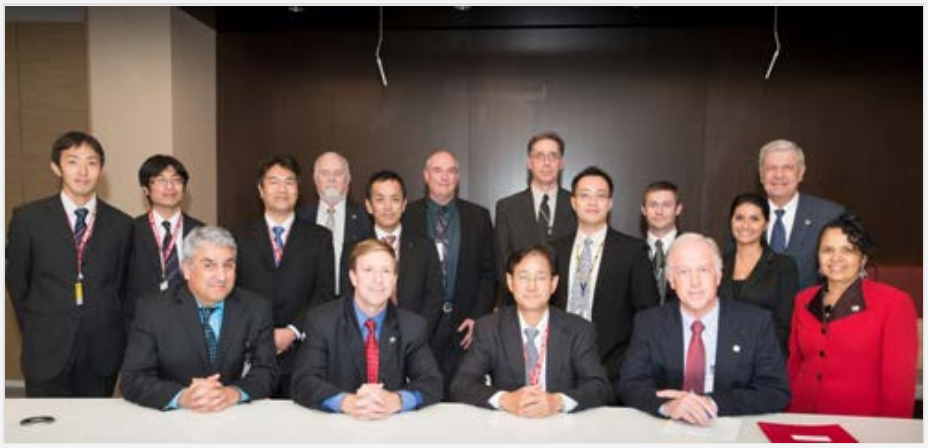
The Aerospace team traveled to Japan in the summer of 2014 to brief the results to Aisin senior management and technical personnel. The presentation, which delivered better-than-expected results, was well-received. In fact, Aisin used the

Aerospace concept in its own modeling, and arrived at identical vibration reduction results.

During the next phase, from October 2014 to March 2015, Tang and Lee Steffeney designed and assembled an experiment that validated the model from Phase I.

Aisin has now requested that Aerospace provide a proposal for further work (Phase III) in FY15. Based on the previous success, Aerospace may develop a prototype for Aisin, which could be a multiyear, multimillion-dollar effort.

Aerospace's innovative vibration-reduction technology has come a long way from its initial promising yet unproven conceptual stage. Aisin and Aerospace have good reason to be optimistic that this technology will have a significant impact on the automotive and space industries.



The Aerospace team hosted representatives from Aisin at Aerospace's El Segundo campus. (Photo: Eric Hamburg)

Patents – Q1 FY15

by Carolyn Weyant
May 01, 2015

The United States Patent and Trademark Office has awarded patents to the following Aerospace employees:

John Poklemba; "Systems and Methods for Pre-Averaged Staggered Convolution Decimating Filters;" U.S. Patent No. 8,855,254; issued Oct. 7, 2014.
Matthew Ferringer and Timothy Thompson; "Systems and Methods for Auto-Adaptive Control Over Converged Results for Multi-Dimensional Optimization;" U.S. Patent No. 8,862,627; issued Oct. 14, 2014.
Rafael Zaldivar and James Nokes; "System and Method for Measuring Glass Transition Temperature;" U.S. Patent No. 8,858,070; issued Oct. 14, 2014.
Meg Abraham and David Taylor; "System and Methods for Preparing Freestanding Films Using Laser-Assisted Chemical Etch, and Freestanding Films Formed Using Same;" U.S. Patent No. 8,866,240; issued Oct. 21, 2014.
Edward Simburger, Daniel Rumsey, and Peter Carian; "Nanosatellite Photovoltaic Regulator;" U.S. Patent No. 8,866,465; issued Oct. 21, 2014.
Nathan Wells and James Camparo; "Systems and Methods for Measuring a Physical Parameter of a Substance Based on an Isoclinic Point in the Absorption Spectrum of Another Substance;" U.S. Patent No. 8,873,061; issued Oct. 28, 2014.
George Valley, George Sefler, and Thomas Shaw; "Systems and Methods for Converting Wideband Signals into the Digital Domain Using Electronics or Guided-Wave Optics;" U.S. Patent No. 8,902,096; issued Dec. 2, 2014.
Kenneth Lau; "Particulate Mitigating Propellant Management Tank Device;" U.S. Patent No. 8,899,974; issued Dec. 2, 2014.
Michael Tockstein, James Nokes, Jon Osborn, Dhruv Patel, Alan Hopkins, and John Williams; "Radio Frequency Transparent Thermal Window;" U.S. Patent No. 8,904,877; issued Dec. 9, 2014.
Sidney Yuan and Tung Lam; "Methods and Systems for Solid State Heat Transfer;" U.S. Patent No. 8,904,809; issued Dec. 9, 2014.

Patents – Q2 FY15

by Carolyn Weyant
May 01, 2015

The United States Patent and Trademark Office has awarded patents to the following Aerospace employees:

Robert Hickman; "Energy Generation Apparatus and Method;" U.S. Patent No. 8,928,169; issued Jan. 6, 2015.
Ching-Yao Tang; "Force Diversion Apparatus and Methods;" U.S. Patent No. 8,931,606; issued Jan. 13, 2015.

Pavel Ionov and Steven Beck**;** “Systems, Methods, and Apparatus for Doppler Lidar;” U.S. Patent No. 8,938,362; issued Jan. 20, 2015.
Henry Helvajian**;** “Photostructured Chemical Devices and Methods for Making Same; U.S. Patent No. 8,940,241; issued Jan. 27, 2015.
Margaret Abraham and David Taylor**;** “Systems and Methods for Preparing Films Comprising Metal Using Sequential Ion Implantation; U.S. Patent No. 8,946,846; issued Feb. 3, 2015.

May 2015 Obituaries

by Carolyn Weyant
May 01, 2015

Sincere sympathy is extended to the families of:

Phyllis Allman, office support, hired July 17, 1967, retired Aug. 1, 1972, died April 22.
June Burns, member of the administrative staff, hired July 27, 1981, retired April 1, 1992, died Oct. 15, 2014.
Calvin Dale, office of the technical staff, hired May 8, 1961, retired May 1, 2002, died June 27, 2014.
Virginia Debley, library assistant, hired Nov. 21, 1977, retired Sept. 1, 1988, died April 3.
Charles Howey, member of the technical staff, hired April 10, 1965, retired July 1, 1991, died April 1.
Solomon Levin, member of the technical staff, hired Sept. 11, 1961, retired July 1, 1976, died April 13.
James Morgan, member of the technical staff, hired Sept. 1, 1961, retired Oct. 1, 1991, died June 30, 2014.
Marian Peebles, management staff admin., hired Feb. 25, 1980, retired Nov. 1, 2007, died April 16.
Charles Renn, member of the technical staff, hired May 16, 1988, retired Nov. 1, 1993, died Nov. 7, 2014.
Gerald Tyner, member of the technical staff, hired Feb. 25, 1963, retired July 1, 1994, died March 13.

To notify Aerospace of a death and have it included in the Orbiter, please contact Cynthia Johnson in Human Resources at 310-336-5806.

May 2015 Anniversaries

by Carolyn Weyant
May 01, 2015

5 YEARS

Civil and Commercial Operations: Thomas Kashangaki

Engineering and Technology Group: Stephen Jacobs, Jack Kawamoto, Randall Onishi,

Jeanne Tamaki, Alanna Wheaton

National Systems Group: Lawrence Wolfe

Operations and Support Group: Bobby Ho, Joe Mathis

Space Systems Group: Michael Mirowski, Richard Sharpe

Systems Planning, Engineering, and Quality: Jeremy Burton, Robert Therriault

10 YEARS

Engineering and Technology Group: James Dixon, Brian Hansen, Harold Iwata, William Lotshaw,

Jeanne McGraw, Sonny Malonzo, Leslie Peterson, George Pollock, Lafayette Porter, Peter Soderlund,

Raylene Thurman, Alexander Utter

National Systems Group: Brian Evans, Kevin Hom

Operations and Support Group: Joseph Soter

Space Systems Group: Andrew Feistel, Daniel Morken, Steve Schmidt, Ronald Williams

Systems Planning, Engineering, and Quality: Chad Arnold, Hubert Chew, Joshua Strahan

15 YEARS

Engineering and Technology Group: Kevin Diamant, Matthew Presley, Mona Sandoval, He Wang, Ronald Williamson

National Systems Group: Peter Brandman, Daniel Stern

Operations and Support Group: Sheila Diggins, Stephanie Risher, Arlene Spears-Smith

Systems Planning, Engineering, and Quality: John Calderini, Timothy Guest, Michael Holmes

20 YEARS

Engineering and Technology Group: John Poklemba, Laura Remington, Kenneth Shere

National Systems Group: Thomas Darone

Space Systems Group: Andrea Ryan, Bradley Wong

25 YEARS

Engineering and Technology Group: Stephen Cota

30 YEARS

Engineering and Technology Group: Ronald Clifton, Robert Minnichelli

National Systems Group: Linda Kalman

Systems Planning, Engineering, and Quality: John Lozano

35 YEARS

Engineering and Technology Group: Steven Bandel

Operations and Support Group: Stephanie Alofaituli

Space Systems Group: Clyde Christopher

Systems Planning, Engineering, and Quality: James Gee